

WHAT IS CLAIMED

1. A method for transmitting an IP packet between a first IP device and a second IP device via a network including a plurality of routers running a second communications protocol different from said first and second IP devices, comprising:

overlying an IP interface over said second communications protocol in selective ones

5 ~~of said plurality of routers.~~

2. The method of claim 1, wherein selective ones of said plurality of routers comprise those routers connected to at least one of said first and second IP devices.

3. The method of claim 2, wherein the router connected to said first IP device comprises a local gateway and the router connected to said second IP device comprises a remote gateway, wherein the overlaid IP interface co-exists with said second communications protocol in said local gateway and said remote gateway, and said step of overlying said IP

5 interface over said second communications protocol comprises:

establishing an IP tunnel interface comprising a network address for uniquely identifying the remote gateway in the second communications protocol, an interface number for reaching said network address, and an IP address for said second IP device to transmit an IP packet.

4. The method of claim 3, wherein the remote gateway includes a table indicating the IP address of the second IP device.

5. The method of claim 4, wherein the remote gateway receives the IP address for the second IP device from the local gateway via the second communications protocol and sends the IP packet to the second IP device using an IP protocol.

6. The method of claim 1, wherein said second communications protocol comprises SONET-OSI.

7. The method of claim 3, wherein said second communications protocol comprises SONET-OSI.

8. The method of claim 5, wherein said second communications protocol comprises SONET-OSI.

9. ~~An apparatus for transmitting an IP packet between a first IP device and a second IP device via a network including routers running a second communications protocol different from said first and second IP devices, said apparatus comprising:~~

~~means for providing said second communications protocol, and
an IP interface overlaid over said second communications protocol.~~

10. The apparatus according to claim 9, wherein the IP interface co-exists with said second communications protocol and includes:

~~an IP tunnel interface comprising a network address for uniquely identifying a router directly connected to said second IP device in the second communications protocol, an interface number for reaching said network address, and an IP address for said second IP device.~~

11. The apparatus according to claim 10 further comprising a network manager operable to broadcast a request to the router directly connected to the second IP device and operable to receive a response from the router directly connected to the second IP device including the network address and IP address for to be associated IP tunnel interface.

12. The apparatus of claim 9, wherein said second communications protocol comprises SONET OSI.

13. The apparatus of claim 10, wherein said second communications protocol comprises SONET OSI.

14. A medium including a computer readable program means for transmitting an IP packet between a first IP device and a second IP device via a network including routers

running a second communications protocol different from said first and second IP devices, said computer readable program means comprising:

- 5 means for providing said second communications protocol, and
an IP interface overlaid over said second communications protocol.

15. The medium of claim 14, wherein a router connected to said first IP device comprises a local gateway and a router connected to said second IP device comprises a remote gateway, wherein the overlaid IP interface co-exists with said second communications protocol in said local gateway and said remote gateway, said overlaid IP interface comprises:

an IP tunnel interface comprising a network address for uniquely identifying the remote gateway in the second communications protocol, an interface number for reaching said network address, and an IP address for said second IP device to transmit an IP packet.

16. The medium of claim 15, wherein said second communications protocol is SONET-OSI.

17. A system for transmitting an IP packet between a first IP device and a second IP device via a network including a plurality of routers running a second communications protocol different from said first and second IP devices, comprising:

- 5 an overlaid IP interface over routers connected to at least one of said first and second IP devices, wherein the router connected to said first IP device comprises a remote gateway and the router connected to said second IP device comprises a remote gateway, wherein the overlaid IP interface co-exists with said second communications protocol in said local gateway and remote gateway, said overlaid IP interface comprising:

an IP tunnel interface comprising a network address for uniquely identifying the
10 remote gateway in the second communications protocol, an interface number for reaching
said network address, and an IP address for said second IP device to transmit an IP packet.

18. The system of claim 17, wherein the IP tunnel interface is provided by a network administrator.

19. The system of claim 17, further comprising a network manager wherein the IP tunnel interface is provided via a broadcast request sent by the network manager located in the local gateway and a response from the remote gateway including said network address and the IP address of said second IP device.

20. The system of claim 18, wherein said second communications protocol comprises SONET OSI.

21. The system of claim 19, wherein said second communications protocol comprises SONET OSI.